OxiTop®-IDS
Multi 3630/3620 IDS

WIRELESS OPERATION OF OXITOP®-IDS MEASURING HEADS

a **xylem** brand

Copyright   © 2022 Xylem Analytics Germany GmbH
Printed in Germany.

Multi 3630/3620 IDS - Contents

1   Overview

Meters of the series MultiLine Multi 3630/3620 IDS can be wirelessly connected to the OxiTop®-IDS measuring heads.

The OxiTop®-IDS measuring heads in conjunction with a Multi 3630/3620 IDS meter add the following functions to the OxiTop® measuring system:

● wireless operation of several OxiTop®-IDS measuring heads at the same time

● convenient examination of measurement data at the meter

● transmitting the measurement data to a PC

● BOD special functions
that cannot be carried out using the operating elements of the OxiTop®-IDS measuring heads

Prerequisites   ● Meter Multi 3630 IDS or Multi 3620 IDS
with current firmware version

● Adapter IDS WLM-M for wireless connection to IDS sensors
with current firmware version

● OxiTop®-IDSmeasuring heads
with current firmware version

The current firmware versions for the meters are available on the Internet at www.wtw.com (to carry out the firmware update: see chapter 8 FIRMWARE UPDATE).

> The connection is established according to the same principle as the wireless communication with sensors via the WLM adapters (for details on the WLM system, see operating manual of the WLM system).

> Basic information on how to operate the meter is given in the operating manual of your meter.

Data exchange with the OxiTop®-IDS measuring heads   OxiTop®-IDS measuring heads transmit the following data to the meter:

● Data of the OxiTop®-IDS measuring head

    – ID

    – Type designation of the OxiTop®-IDS measuring head (e.g. OxiTop®-IDS)

    – Series number of the OxiTop®-IDS measuring head

● Calibration data

● Measurement data

● Measurement settings

2   Safety

2.1   Safety information

2.1.1   Safety information in the operating manual

This operating manual provides important information on the safe operation of the meter. Read this operating manual thoroughly and make yourself familiar with the meter before putting it into operation or working with it. The operating manual must be kept in the vicinity of the meter so you can always find the information you need.

Important safety instructions are highlighted in this operating manual. They are indicated by the warning symbol (triangle) in the left column. The signal word (e.g. "CAUTION") indicates the level of danger:

> ⚠️ **Warning**
> indicates a possibly dangerous situation that can lead to serious (irreversible) injury or death if the safety instruction is not followed.

> ⚠️ **Caution**
> indicates a possibly dangerous situation that can lead to slight (reversible) injury if the safety instruction is not followed.

NOTE
indicates a possibly dangerous situation where goods might be damaged if the actions mentioned are not taken.

2.1.2   Safety signs on the meter

Note all labels, information signs and safety symbols on the meter and in the battery compartment. A warning symbol (triangle) without text refers to safety information in this operating manual.

2.1.3   Further documents providing safety information

The following documents provide additional information, which you should observe for your safety when working with the measuring system:

• Operating manuals of measuring heads and other accessories
• Safety datasheets of calibration or maintenance accessories (such as buffer solutions, electrolyte solutions, etc.)

2.2 Safe operation

2.2.1 Authorized use

Authorized use of the meter in operation with OxiTop®-IDS measuring heads is exclusively the pressure measurement with OxiTop®-IDS measuring heads in a laboratory.

Only the operation and running of the analyzer according to the instructions and technical specifications given in this operating manual is authorized (see chapter 16 TECHNICAL DATA).

Any other use is considered unauthorized.

2.2.2 Requirements for safe operation

Note the following points for safe operation:

• The meter may only be operated according to the authorized use specified above.

• The meter may only be supplied with power by the energy sources mentioned in this operating manual.

• The meter may only be operated under the environmental conditions mentioned in this operating manual.

• The meter may only be opened if this is explicitly described in this operating manual (example: Inserting the batteries).

2.2.3 Unauthorized use

The meter must not be put into operation if:

• it is visibly damaged (e.g. after being transported)

• it was stored under adverse conditions for a lengthy period of time (storing conditions, see chapter 16 TECHNICAL DATA).

3   Commissioning

Information on how to put the Multi 3630/3620 IDS into operation is given in the operating manual of your meter.

Information on how to put the WLM-M adapter into operation is given in the operating manual of the WLM system.

To carry out measurements with the OxiTop®-IDS measuring heads, proceed as follows:

● If necessary, disconnect any other sensors from the meter (simultaneous operation with IDS sensors is not possible)

● Plug the WLM-M adapter to the Multi 3630/3620 IDS meter
(see operating manual of the WLM system)

● Switch on the Multi 3630/3620 IDS meter
(see operating manual of the Multi 3630/3620 IDS meter)

● For initial commissioning, press **<M_>** to switch the meter to operation with OxiTop®-IDS measuring heads.

● Switch on the OxiTop®-IDS measuring heads
(see operating manual OxiTop®-IDS of the measuring head)

● Assign an extra ID to each OxiTop®-IDS measuring head
(see operating manual OxiTop®-IDS of the measuring head)

4 Operation

The basic information and general operating principles are given in the operating manual of your meter, e.g. operation, navigation in the menu, setting the date, time and language.

The meter can either be operated with IDS sensors or OxiTop®-IDS measuring heads. Operation with OxiTop®-IDS measuring heads is possible only wireless.

Using **<M_>** switch between operating with IDS sensors and operating with OxiTop®-IDS measuring heads.

On delivery, operation with IDS sensors is preset.

Prerequisites Prerequisites for operation with OxiTop®-IDS measuring heads:

● Meter Multi 3630 IDS or Multi 3620 IDS
  with current firmware version

● Adapter WLM-M is connected to the meter Multi 3630/3620 IDS,
  with current firmware version

● OxiTop®-IDS measuring heads

● Undisturbed radio link between OxiTop®-IDS measuring head and meter

● The radio connection is active at the OxiTop®-IDS measuring head

● No IDS sensor is connected to the meter

The current firmware versions for the meters are available on the Internet at www.wtw.com (to carry out the firmware update: see chapter 8 FIRMWARE UPDATE).

Communication between OxiTop®-IDS measuring head and meter Communication between the meter and OxiTop®-IDS measuring head only starts after an OxiTop®-IDS measuring head was assigned to a sample.

This communication is used for the following purposes:

● Exchanging data and settings between meter and OxiTop®-IDS measuring head

● Identifying OxiTop®-IDS measuring heads using the meter
  (the LED at the measuring head indicates the communication)

Status LED at the OxiTop®-IDS measuring head The status LED at the OxiTop®-IDS measuring head indicates the current state of a measurement. The LED flashes slowly (approx. every 5 seconds).

Color	Explanation
Magenta	Measurement is running. The measuring head can be reached via radio.
Blue	Measurement is running. The measuring head OxiTop®-IDS cannot be reached via radio.

Color	Explanation
Red	Measurement is running. The measuring head is in a critical condition: ● The battery is nearly discharged or ● The pressure in the sample bottles is too high. Suitable actions, see operating manual of your measuring head.
Green	The measurement is finished. The status LED flashes green for approx. 24 hours. The measuring head OxiTop®-IDS can be reached via radio.

4.1 Measuring modes while operating the OxiTop®-IDS measuring heads

Measuring mode		Explanation
BOD		● Measurement of up to 12 parallel sample processes per overall sample for a BOD_x (x = 0.5h ... 180d) ● Automatic sample statistics with averaging ● The *AutoTemp* function can be switched on ● The *GLP* function can be switched on
	BOD standard	● The measuring range and sample volume can be selected from seven fixed combinations. ● The incubation temperature is 20 °C
	BOD special	● *Measuring range*, *Dilution 1 +*, *Sample volume* and *Bottle volume* can be freely adjusted ● The incubation temperature (5 °C to 40 °C) can be set up
Pressure p		● Pure pressure measurement ● Measuring range: – 500 ... 1250 hPa (OxiTop® i/OxiTop®-IDS) – 500 ... 1500 hPa (OxiTop®-IDS /B) ● A *Alarm diff. pressure* can be set ● Up to 10 manually triggered measurements (momentary values) are saved with pressure value and point in time ● The *GLP* function can be switched on

4.2   OxiTop® set management

4.2.1   Overview

After switching to operation with the OxiTop®-IDS measuring heads with **<M_>**, the display of the meter shows the *OxiTop set management* (overview of all set/ samples started).

Set   A set can include several (max. 12) samples, for which the following joint settings are specified:

● *Measuring mode* (BOD [*BOD standard* / *BOD special*], *Pressure p*)

● *Duration*

● *Set name*

● Further settings depending on the selected *Measuring mode*

> Example:
> All samples started at the same time (e.g. on a common stirring platform) are included in a set with a common name.
>
> The meter automatically creates an identifiable name for the set. The name consists of the date (format YYMMDD) and an index (-x), which is automatically incremented for sets started on the same day, e.g. 190422-1. The automatically created name can be changed manually (max. 8 characters [numerals / letters])

Sample   To determine the BOD, one sample can be distributed to several (max. 12) measuring bottles (parallel determination), for which the following common settings are specified:

● *Sample name*

● Further settings depending on the selected *Measuring mode*

The meter automatically creates an identifiable name for the sample. The name consists of a letter (A) and an index (-x) that is automatically increased for further samples in the same set, e.g. A-1. The automatically created name can be changed manually (max. 8 characters [numerals / letters])

Meas. head   Each measuring bottle is closed with an OxiTop®-IDS measuring head. The OxiTop®-IDS measuring heads are always assigned to a sample by the meter.

4.2.2   Overview of the sets (*OxiTop set management*)

In the *OxiTop set management*, you can

● create new sets (**<F1>**/[*New*]),
  and within a set, new samples

  – max. 12 sets

  – per set up to 12 samples

  – per sample up to 12 OxiTop®-IDS measuring heads
    (the maximum number of OxiTop®-IDS measuring heads for a meter is
    limited to 100)

● Delete sets (**<F2>**/[*Delete*])

● Show details of each set (**<ENTER>**)
  e.g. overview of the samples in the set

● General settings (**<ENTER_>**)
  system settings for the meter (e.g. language etc.)

```
                1        2    3      4          5

        ┌─ OxiTop set management ──────────────┐
        │ 190216-1       ✓    5/5    BOD5    21.05.2019 │
        │ 190216-2            360/360 BOD5   21.05.2019
        │ 190216-3            6/7    BOD7    23.05.2019
        │ 190217-1            4/4    BOD4h   17.05.2019
        │ 190220-1            4/20   BOD20   12.06.2019
        │ 190220-2            360/360 BOD5   21.05.2019
        │ RED_F113-1          1/5    p5      25.05.2019
        │ 190223-1            137/360 BOD30m 23.05.2019
        │
        │ 79 Free meas. heads
        │              15.03.2020 08:00
 6 →    │    New                              Delete   │ ← 7
```

1 *Set name*

2 Check mark (✓ = finished):
   when the data of the measuring head have been transmitted to the
   meter at the end of the specified *Duration*

3 Status of the set
   Number of measured values / maximum number of measured values

4 *Type* (*Measuring mode, Duration*)

5 *End date* of the measurement

6 **<F1>**/[*New*] (creates a new set)

7 **<F2>**/[*Delete*] (deletes the highlighted set)

8

Using **<▲▼>**, select a set.

4.2.3   Overview of the samples of the set

The current measured values of all samples are automatically called up when the details of a set are queried (with **<ENTER>** in the *OxiTop set management*).

```
1 ──►    ┌─Set 190216-1 ──────────────────────┐
2 ──►    │ A-1      ✓    4000 mg/l   BOD5   1/1 │
         │ A-2           357 mg/l    BOD5   2/3 │
         │                                      │
         │                                      │
         │                                      │
         │                                      │
3 ──►    │ 79 Free meas. heads                  │
4 ──►    │  ┌───┐   15.03.2020 08:00  ┌────────┐│ ◄── 5
         │  │ i │                     │ Delete ││
         │  └───┘                     └────────┘│
         └──────────────────────────────────────┘
```

1 *Set name*

2 *Sample name*, measured value, type, OxiTop®-IDS measuring heads called up/number of OxiTop®-IDS measuring heads in the sample;

 – Check mark (✓ = finished) next to *Sample name* :
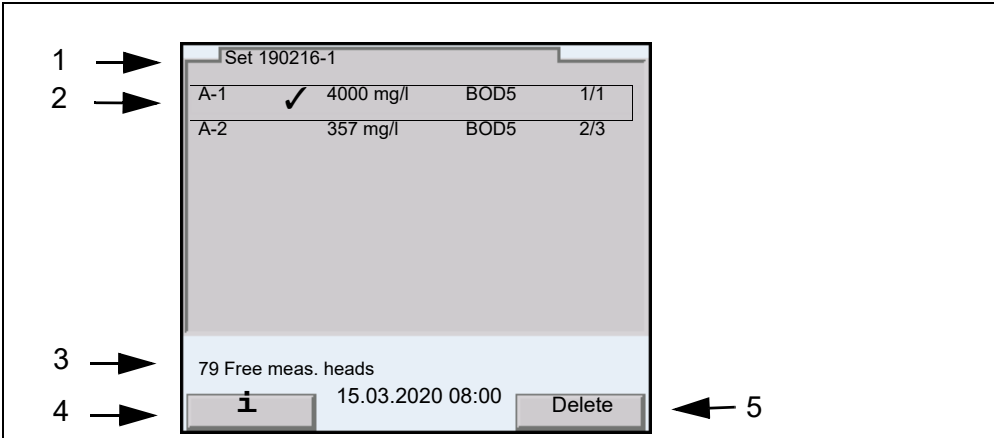 when the data of the measuring head have been transmitted to the meter at the end of the specified *Duration*

 – Asterisk (***** = *Alarm diff. pressure* exceeded) next to measured value:
  if the *Alarm diff. pressure* is exceeded in at least one OxiTop®-IDS measuring head of the sample (only for *Measuring mode*: *Pressure p*)

3 Status line (number of OxiTop®-IDS measuring heads that can yet be registered)

4 **<F1>**/[**i**]: the graphic evaluation of the OxiTop®-IDS measuring heads of the highlighted sample is displayed.

5 **<F2>**/[*Delete*] (deletes the highlighted sample)

Selecting a sample with **<▲▼>** and confirming with **<ENTER>** causes the overview of the OxiTop®-IDS measuring heads of the highlighted sample to be displayed.

After selecting a sample with **<▲▼>** you can output the measurement data of the highlighted sample to the USB interface with **<PRT_>** or **<PRT>**:

Key	Explanation
<PRT_>	Output of the data as a *.csv file to the USB-A interface, to a connected USB memory device.
<PRT>	Output of the data in ASCII or CSV format (setting in the system menu) to the interface USB-A or USB-B. The meter recognizes whether a printer or PC is connected.

4.2.4   Overview of the OxiTop®-IDS measuring heads in a sample

The details of the OxiTop®-IDS measuring heads registered for a sample are listed in the overview of samples in the set and can be viewed by selecting a sample with **<▲▼>** and displaying it with **<ENTER>**.

1   *Sample name*

2   Number of the OxiTop®-IDS measuring head (set at the OxiTop®-IDS measuring head)

3   Check mark (✓ = finished):
    when the data of the measuring head have been transmitted to the meter at the end of the specified *Duration*

4   Series number of the OxiTop®-IDS measuring head

5   Measured value
    (last value transmitted by the measuring head in the specified interval)

   – Asterisk (***** = *Alarm diff. pressure* exceeded):
     if the *Alarm diff. pressure* in the OxiTop®-IDS measuring head is exceeded (only for *Measuring mode*: *Pressure p*)

6   *GLP* (valid calibration available during start of measurement)

7   **<F1>**/[**i**]: the LED at the highlighted OxiTop®-IDS measuring head lights up red for a short time.

8   **<F2>**/[*Delete*]: deletes the highlighted OxiTop®-IDS measuring head from the sample

4.3 Settings

4.3.1 Measurement settings of the set

The measurement settings for a set are defined while the set is being established.

Default settings are printed in bold.

Menu item	Possible setting	Explanation
Measuring mode	***BOD standard*** *BOD special* *Pressure p*	Depending on the selected measuring mode, some of the following settings are enabled or grayed out
Set name	max. 8 characters	The 8 characters can be freely selected. Preselected is a clear combination of numerals (date). An index is also assigned automatically.
Duration	30 min,1 h ...1 d... **5** d... 180 d	Duration of the measurement
Settings	General settings for the set	
GLP	*on* ***off***	Function to check whether the measuring heads have a valid calibration. When the sample is being registered, measuring heads without a valid calibration are rejected if the *GLP* function is active.
AutoTemp	***on*** *off*	Function to control the temperature adjustment. Measurement is started automatically (at least 1 hour, at most 3 hours after the OxiTop®-IDS measuring head is started). Pre-tempering the samples to exactly 20°C is not required. The samples can be inserted with a temperature in the range of 15°C ... 21°C. The *AutoTemp* function takes over the temperature control.
Alarm diff. pressure (Only for *Measuring mode*: *Pressure p*)	50 ...**150** ... 500 hPa	Difference pressure (negative or positive pressure difference compared to the start pressure). If it is exceeded, the meter marks the sample with an asterisk (**!**). The warning when the specified *Alarm diff. pressure* is exceeded is triggered when: – the measurement data have been transmitted to the meter and – the measured value that was last stored by the OxiTop®-IDS measuring head exceeds the difference pressure
Man. temperature (for *BOD special*)	5 ... **20** ... 40 °C	Manual setting of the temperature at which the measurement takes place

Menu item	Possible setting	Explanation
Number of measured values	***Standard*** *Max.*	1 measured value per day 360 measured values for the specified measuring duration
LED	***on*** *off*	Switching on/off the LED indication of the operating statuses (at the OxiTop®-IDS measuring head). The LED (at the OxiTop®-IDS measuring head) can be switched off to save energy.
Eco mode (radio)	***on*** *off*	Energy saving function to switch on or off the OxiTop®-IDS measuring heads.
Only for *Eco mode (radio)* = *on*: ● *Radio connection from* ● *Radio connection until*	each 0.00 ... 23.00	Entry of the time (hours, begin and end) at which the measuring heads can be reached via radio every day (LED magenta). Outside the specified times, the radio connection of the measuring heads is switched off in order to save energy (LED blue). The restricted radio connection is only active during a measurement.

4.3.2   Measurement settings of the sample

> The general settings for the set apply to the entire meter. All other settings always apply to all OxiTop®-IDS measuring heads in the current set.

The measurement settings for the sample are defined when the sample is registered within a set.

Default settings are printed in bold.

Menu item	Possible setting	Explanation
Sample name	max. 8 characters	The 8 characters can be freely selected Preselected is an A. An index is also assigned automatically.
Measuring range (for *BOD standard*)	0 ... 40 / 80 / 200 mg/l 0 ... 400 mg/l 0 ... 800 / 2000 / 4000 mg/l	The measuring range expected for the sample can be selected from 7 permanent ranges. Selecting the measuring range defines the *Sample volume*. The corresponding *Sample volume* is displayed as Info.
Calculation (for *BOD special*)	**Measuring range** *Sample volume* *Bottle volume*	Parameter to be calculated The parameters not calculated are set in the *Settings* menu.
Settings (for *BOD special*)	The maximum setting ranges quoted here can be restricted by other settings. The setting selected in the *Calculation* menu is not available here.	
Measuring range	0 ... 400000 mg/l	Measuring range
Sample volume	10 ... [*Bottle volume* - 10] ml	Sample volume
Bottle volume	50 ... 9999 ml	Bottle volume
Dilution 1 +	0 ... 99	Dilution of the sample (1 part sample + x parts water)

4.3.3   Setting the date and time at the OxiTop®-IDS measuring head

Automatic setting   The setting of the date and time for an OxiTop®-IDS measuring head is done automatically each time a measuring head is registered with a sample.

Manual setting   After an exchange of the battery while measuring:

You can transmit the date and time from the meter to the OxiTop®-IDS measuring head.

1   Switch on the meter with **<On/Off>**.

2   Open the *System* menu with **<ENTER_>**.

3   Open the menu *System*/*Clock function*/*AutoClock (OxiTop)*.

4   Follow the instructions on the display.
Press the **<▲▼>** key of the OxiTop®-IDS measuring head (right-hand key) and keep it depressed until the LED flashes green.
When the OxiTop®-IDS measuring head has been identified by the meter, the following data of the head are displayed:
● **ID** (assigned at the measuring head)

● **Series number** of the OxiTop®-IDS measuring head

```
┌──────────────────────────────────────┐
│  Measuring head                        │
│  38        12345678                    │
│                                        │
│                                    2   │
│                                    1   │
│                                        │
│  Accept date/time                      │
│  Cancel                                │
│                                        │
│        15.03.2020 08:00                │
└──────────────────────────────────────┘
```

1 ID of the OxiTop®-IDS measuring head
(entered at the OxiTop®-IDS measuring head)

2 Series number of the OxiTop®-IDS measuring head
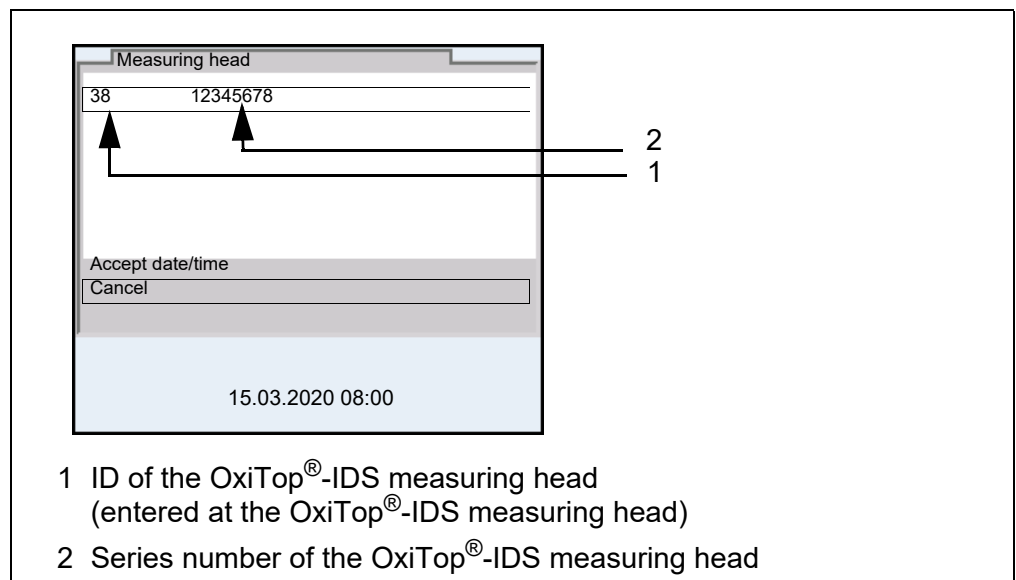
5   Using *Accept date/time*, confirm the date and time for the measuring head.
or
To not confirm the date and time for the measuring head, press *Cancel*.

4.4   Functions in the menu *Service (operation with OxiTop)*

When working with the OxiTop®-IDS measuring heads, the following service functions are available.

Menu item	Explanation
System / Service (operation with OxiTop) / Meter information	The hardware- and software version of the meter is displayed (for details, refer to the operating manual concerning operation with sensors).
System / Service (operation with OxiTop) / Back up data on USB flash drive	This function saves all existing OxiTop®-IDS data (set data, sample data, measurement data) to a connected USB memory device in machine-readable form. The saved data can be transferred to this or another meter.
System / Service (operation with OxiTop) / Transfer backup to device	The function transfers a backup from a connected USB memory device to a meter (see function *Back up data on USB flash drive*). Thus, measurements that have been started can be continued with another meter.
System / Service (operation with OxiTop) / Reset the OxiTop set management	The function serves to correct errors when starting functions of the set, sample and measurement data (see section 7 WHAT TO DO IF...). All sample and set data are erased. If available, transfer a data backup from a USB memory device to the meter (see function *Transfer backup to device*)

4.4.1   Starting the data backup

The data backup function reduces the risk of data loss during ongoing measurements due to failure of a measuring device.

For each measurement that was started, set, sample and measurement data are stored in the meter. Measuring data of the measuring heads can only be read out by the meter if the correct set and sample data are available in the meter.

The function *Back up data on USB flash drive* is used to save set, sample and measurement data to a USB memory device. By transferring this backup to another meter, ongoing measurements can be continued with another meter (see section 4.4.2 TRANSFERRING THE SAVED DATA TO A METER).

> A USB memory device is required for the data backup.
>
> Only USB memory devices with the FAT 16 or FAT 32 file systems are suitable.

1   Connect a USB memory device to the USB-A interface.

2   Open the *System* menu with **<ENTER_>**.

3   Open the menu *System* / *Service (operation with OxiTop)*.

4   Carry out the function *Back up data on USB flash drive*.
    The following information is displayed during the backup.
    The backup copy is created on USB
    flash memory. Do not cancel the process!

5   Wait until the menu *Service (operation with OxiTop)* is displayed again.
    The backup is finished.

6   Remove the USB memory device.

7   Label the USB memory device with the date of the backup and an iden-
    tification of the meter.

> Repeat the data backup after each change of the set, sample or
> measurement data, e.g. after starting a new measurement.
>
> A current data backup is necessary to be able to continue all ongo-
> ing measurements with another meter.
>
> Older backups are moved to the USB memory device.

4.4.2 Transferring the saved data to a meter

The function *Transfer backup to device* copies saved set, sample and mea-
surement data (see section 4.4.1 STARTING THE DATA BACKUP)) from a USB
memory device to a meter.

Measurement data of ongoing measurements can thus be read out from the
OxiTop measuring heads with a replacement meter without data loss.

The function *Transfer backup to device* only copies the most recent backup to
the meter.

> The transfer of saved set, sample and measurement data to a
> meter overwrites all set, sample and measurement data existing on
> that meter.
>
> For important set, sample and measurement data on the replace-
> ment meter, make a backup of the data (see section 4.4.1 STARTING
> THE DATA BACKUP).

1   Connect the USB memory device with a data backup to the USB-A
    interface of a meter Multi 3630/3620 IDS.

2   Open the *System* menu with **<ENTER_>**.

3   Open the menu *System* / *Service (operation with OxiTop)*.

4   Carry out the function *Transfer backup to device*.
The last saved backup is searched for on the USB memory device.
The following information is displayed during the transfer.
The backup copy is transferred to the
device memory. Do not cancel the process!
After successful transfer, the menu is displayed again.

5   Remove the USB memory device.

5   Operation with OxiTop®-IDS measuring heads

5.1   Measuring

5.1.1   Preparing the measurement

Municipal wastewater does not normally contain any toxic or inhibiting substances. There are enough nutrient salts and suitable microorganisms present. Under these conditions, BOD determination in the undiluted sample using the OxiTop®-IDS measuring system is possible.

Prior to measuring, carry out the following preparatory activities:

● Keep ready the instruments and accessories required

  – OxiTop®-IDS measuring heads

  – Stirring platform

  – Thermostat cabinet/box (BOD standard: temperature 20 °C ± 1 °C)

  – Brown sample bottles (bottle volume 510 ml)

  – Magnetic stirring rods (1 stirring rod for each sample bottle)

  – Magnetic stirring rod remover

  – Suitable overflow volumetric flask

  – Rubber sleeves

  – Nitrification inhibitor ATH (NTH 600)

  – Sodium hydroxide tablets (NHP 600)

● Determine the sample volume
  (see operating manual of the OxiTop®-IDS measuring head)

● Prepare the samples
  (see e.g. operating manual of the OxiTop®-IDS measuring head or
  WTW application reports, chapter "Sample preparation")

**Further documents
on BOD
determination**

● Operating manual of your OxiTop®-IDS measuring head

● WTW application reports (see www.wtw.com)

● DIN EN 1899-2
  Water quality - Determination of the biochemical oxygen demand after n
  days (BOD) - part 2: Procedure for undiluted samples (ISO 5815:1989, modified)

Risks during determination of biogas (OxiTop®-IDS /B measuring head)

⚠️ Caution
During the anaerobic degradation of organic material in sealed equipment, high pressure can develop due to biogas (main components: methane and carbon dioxide).

The following hazards can occur:

● **Risk of bursting due to the high pressure and risk of injury caused by flying glass splinters.**
● **Risk of explosion due to development of flammable gas mixtures if high concentrations of methane escape.**

Take the following precautionary measures for safe operation:

● **Only use WTW measurement bottles of the MF/... series, which are especially designed for biogas determination (see WTW catalog).**
● **Only use measurement bottles that are not damaged (e.g. are not cracked, chipped or scratched).**
● **Determine the reaction conditions (temperature, quantity) under which no dangerous excess pressure develops by means of monitored preliminary tests (e.g. with diluted material).**
● **For unmonitored measurements, include a buffer for the developing pressure, as the composition of biological material can considerably vary. Therefore, a pressure that is higher than planned on can develop.**
● **Only use the corrosion resistant OxiTop®-IDS /B measuring heads. They were designed especially for biogas applications.**
● **OxiTop®-IDS /B measuring heads display measured values in the range 500 ... 1500 hPa. OFL (measuring range exceeded) is displayed if the pressure is higher.**

CAUTION
The pressure sensor in the OxiTop®-IDS measuring head may be destroyed by a pressure of 2000 hPa or higher.

⚠️ Caution
If an OxiTop®-IDS /B measuring head displays OFL (measuring range exceeded) despite all precautionary measures, the actual pressure can already be considerably higher than 1500 hPa.

Terminate the measurement immediately:

● **Wear protective equipment (face shield, protective clothing, gloves).**
● **Wrap the bottle in a thick towel.**
● **Vent the bottle.**

5.1.2 The course of the measurement

1   Carry out the preparatory activities
(see section 5.1.1 PREPARING THE MEASUREMENT):

- Keep ready the instruments and accessories required

- Determine the sample volume

- Prepare the samples

2   Switch on the meter with **<On/Off>**.

3   If necessary, use **<M_>** to switch to operation with the OxiTop®-IDS measuring heads.
The *OxiTop set management* (overview of the sets started) is displayed.

Preparation before starting the measurement

OxiTop set management				
190216-1	✓	5/5	BOD5	21.05.2019
190216-2		360/360	BOD5	21.05.2019
190216-3		6/7	BOD7	23.05.2019
190217-1		4/4	BOD4h	17.05.2019
190220-1		4/20	BOD20	12.06.2019
190220-2		360/360	BOD5	21.05.2019
RED_F113-1		1/5	p5	25.05.2019
190223-1		137/360	BOD30m	23.05.2019

79 Free meas. heads

New	15.03.2020 08:00	Delete

During the initial commissioning the list *OxiTop set management* is empty.

The display shows *No data available!*.

4   In the *OxiTop set management*, use **<F1>**/[*New*] to create a new set of samples.
The *Set* menu opens.

5   Temper the test sample or measure the current temperature.

```
┌─────────────────────────────────────────┐
│ ┌Set                                     │
│ ┌─────────────────────────────────────┐ │
│ │ Measuring mode           BOD special │ │
│ │ Set name                 190228-1    │ │
│ │ Duration                 17 d        │ │
│ │ Settings                             │ │
│ │                                      │ │
│ │                                      │ │
│ │ i  BOD5 End date 23.02.2019          │ │
│ │ AutoTemp, GLP                        │ │
│ │ V_P 432 ml                           │ │
│ │                                      │ │
│ │ 79 Free meas. heads                  │ │
│ │ ┌───────┐                            │ │
│ │ │Sample │     15.03.2020 08:00       │ │
│ └─┴───────┴────────────────────────────┘ │
└─────────────────────────────────────────┘
```
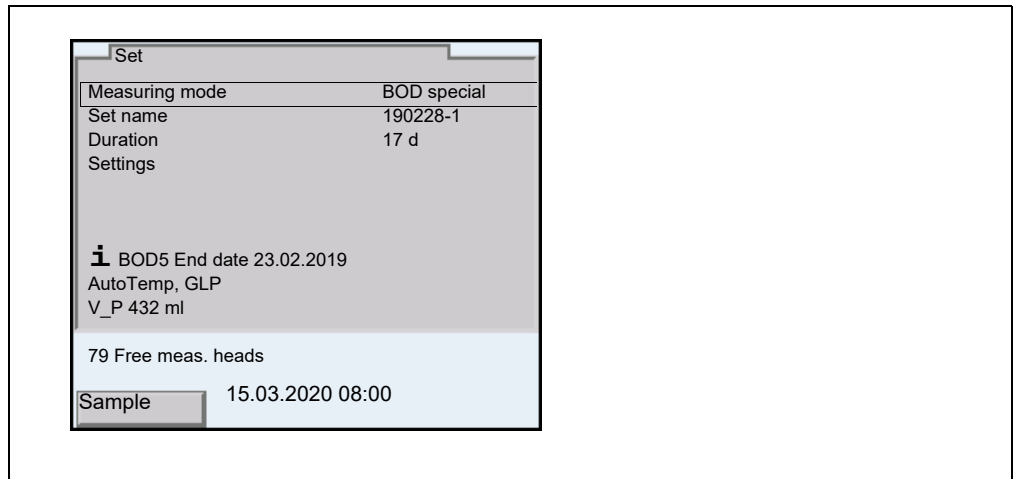
6   Check and, if necessary, change the settings in the *Set* menu.
     ● *Measuring mode*
        - BOD measurement (*BOD standard* / *BOD special*) or
        - pressure measurement (*Pressure p*)
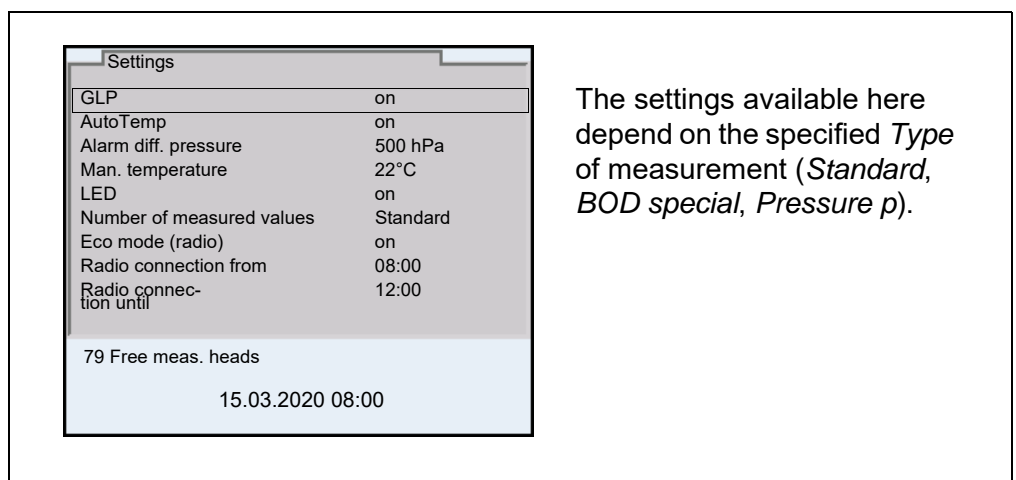   Depending on the selected measuring mode, further special set-
        tings for the sample are possible.
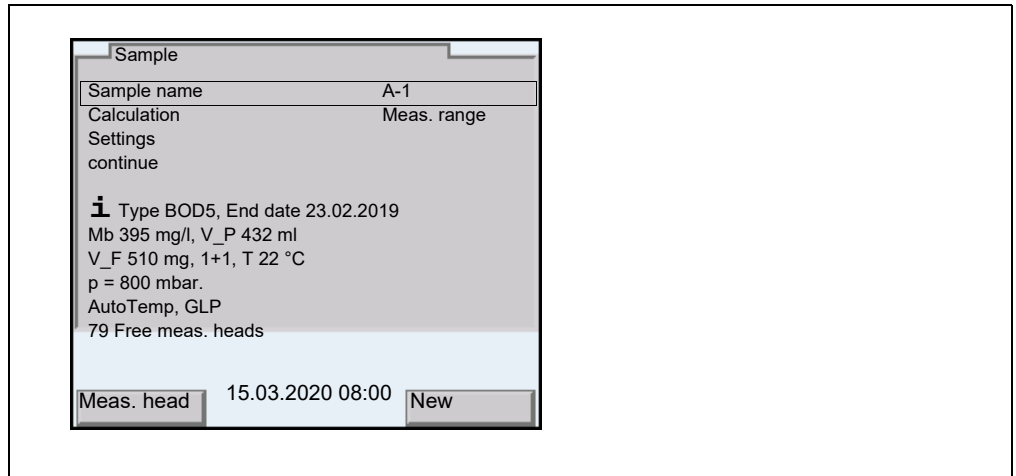
     ● *Set name*
        The current date with an index (consecutive number) is automati-
        cally preselected as name for the set. The name can be changed
        freely (max. 8 characters [numerals / letters])

     ● *Duration*
        Make sure that the remaining lifetime of the battery of the measuring
        head is sufficient for the specified duration. You can insert a new
        battery or make use of the energy saving settings, e.g. switch off the
        LED or switch on the Eco mode (radio).

     ● *Settings*

7   Open the *Settings* / menu.

```
┌─────────────────────────────────────────┐
│ ┌Settings                                │
│ ┌───────────────────────────────────────┐│
│ │ GLP                        on         ││
│ │ AutoTemp                   on         ││
│ │ Alarm diff. pressure       500 hPa    ││
│ │ Man. temperature           22°C       ││
│ │ LED                        on         ││
│ │ Number of measured values  Standard   ││
│ │ Eco mode (radio)           on         ││
│ │ Radio connection from      08:00      ││
│ │ Radio connec-              12:00      ││
│ │ tion until                            ││
│ │                                       ││
│ │ 79 Free meas. heads                   ││
│ │           15.03.2020 08:00            ││
│ └───────────────────────────────────────┘│
└─────────────────────────────────────────┘
```

The settings available here
depend on the specified *Type*
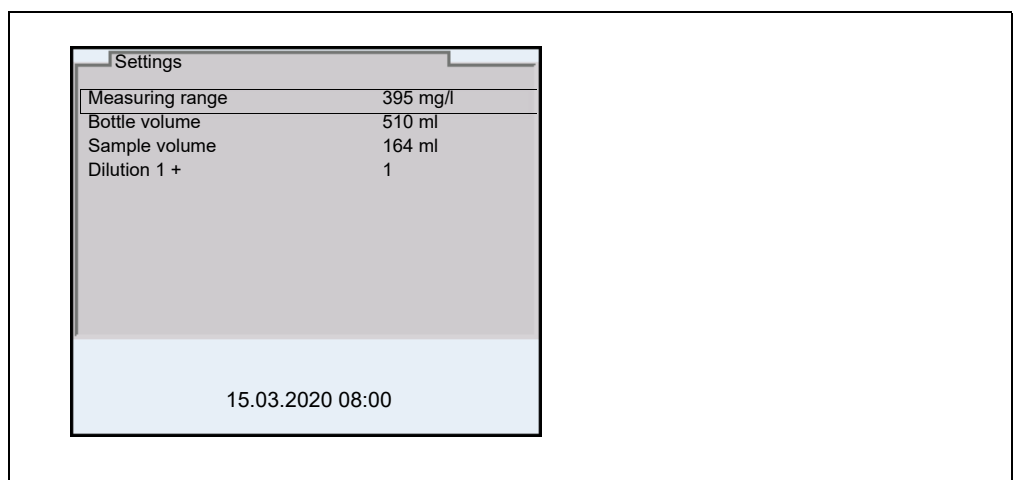of measurement (*Standard*,
BOD special, *Pressure p*).

8   Check and, if necessary, change the settings for the set in the *Settings*
     menu (see section 4.3 SETTINGS).

9   Quit the *Settings* menu with **<ESC>**.

10 Using **<F1>**/[*Sample*], open the settings for the individual samples in
    the current set.

```
┌─Sample─────────────────────────┐
│ Sample name              A-1   │
│ Calculation           Meas. range│
│ Settings                       │
│ continue                       │
│                                │
│ ⓘ Type BOD5, End date 23.02.2019│
│ Mb 395 mg/l, V_P 432 ml        │
│ V_F 510 mg, 1+1, T 22 °C       │
│ p = 800 mbar.                  │
│ AutoTemp, GLP                  │
│ 79 Free meas. heads            │
│                                │
│ ┌──────────┐ 15.03.2020 08:00 ┌──────┐│
│ │Meas. head│                  │New   ││
└─┴──────────┴──────────────────┴──────┴┘
```

11 Check and, if necessary, change the settings in the *Sample* menu.
    ● *Sample name*
      An A with an index (consecutive number) is automatically prese-
      lected. The A can be changed freely (max. 8 characters [numerals /
      letters])

    ● *Measuring range* (only with *Type = Standard*)

    ● *Calculation* (only with *Type = BOD special*)

    ● *Settings* (only with *Type = BOD special*)

12 Further information and settings of the sample are displayed as an Info
    message.

13 Only for *Measuring mode = BOD special*:
    Open the *Settings* menu.

```
┌─Settings───────────────────────┐
│ Measuring range        395 mg/l │
│ Bottle volume          510 ml   │
│ Sample volume          164 ml   │
│ Dilution 1 +           1        │
│                                │
│                                │
│                                │
│                                │
│         15.03.2020 08:00        │
└────────────────────────────────┘
```

Check and, if necessary, change the settings in the *Settings* menu.
- *Measuring range*
- *Bottle volume*
- *Sample volume*
- *Dilution 1 +*

Quit the *Settings* menu with **<ESC>**.

14 Using **<F1>**/[*Meas. head*] start the assignment of a OxiTop®-IDS measuring head to the current sample.

15 Follow the instructions on the display.
Press the **<▲▼>** key of the OxiTop®-IDS measuring head (right-hand key) and keep it depressed until the LED flashes green.
When the OxiTop®-IDS measuring head has been identified by the meter, the following data of the head are displayed:
- *ID* (assigned at the measuring head)
- *Series number* of the OxiTop®-IDS measuring head
- *GLP* (if there is a valid calibration).

```
Measuring head
38       12345678          GLP          ← 3
                                           2
                                           1

Reject measuring head
Accept measuring head


            15.03.2020 08:00
```

1 ID of the OxiTop®-IDS measuring head
(entered at the OxiTop®-IDS measuring head)

2 Series number of the OxiTop®-IDS measuring head

3 GLP (if there is a valid calibration).
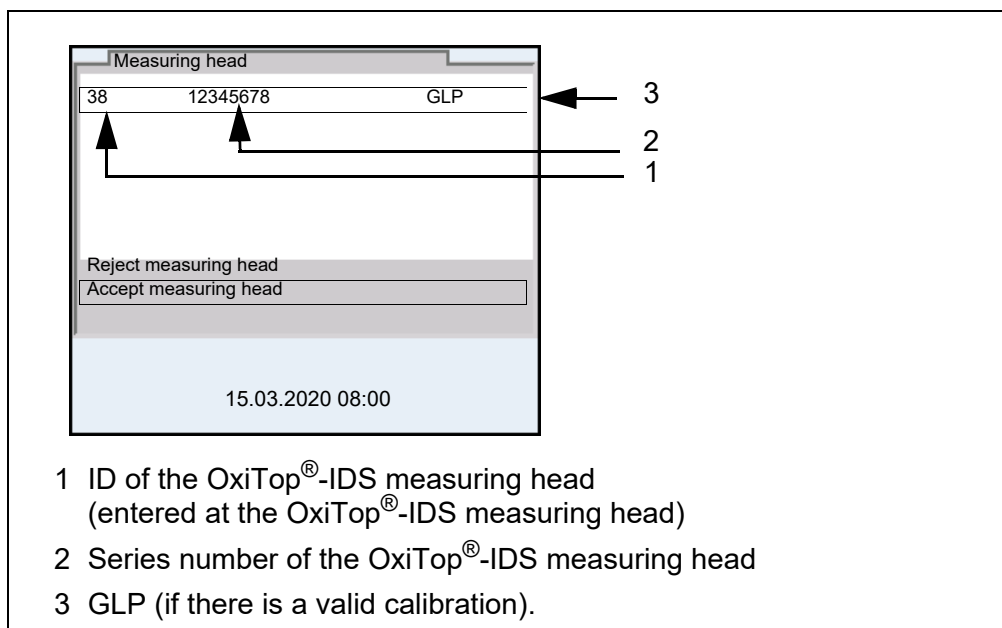
16 Using *Accept measuring head*, confirm the assignment of the OxiTop®-IDS measuring head.
or
Using *Reject measuring head*, cancel the assignment of the OxiTop®-IDS measuring head.
The *Set* menu is open.

When the measuring head is accepted, the date and time of the meter are automatically transferred to the measuring head.

17   Assign further measuring heads of the current *Sample* in the *Set* (repeat steps 14-16).

18   If necessary, create another sample in the set with **<F2>**/[*New*]. As the name for the *Sample*, a new number is automatically selected. The name can be changed freely (max. 8 characters [numerals / letters])

Assign the OxiTop®-IDS measuring heads to the new sample (repeat steps 13-17).

Starting the measurement

19   Using **<ESC>**, or with the menu item *continue* , switch to the *Set* menu.

20   Using *Start measurement*, start measurement for all samples in the set at the same time.
- The LEDs at the measuring head flash magenta for at least half an hour (if the signal LED on the measuring head is switched on).
- The measuring heads can be reached via radio for at least half an hour.
- *AutoTemp* is displayed on the display (when the *AutoTemp* function is switched on at the measuring heads).

The settings cannot be changed for a measurement once it is started.

Each OxiTop®-IDS measuring head connected to the meter can indicate the following data on the display:
- Name of the set
- Name of the sample
- Settings

For this press the <ENTER> key at the measuring head.

21   Keep the sample bottles (with the OxiTop®-IDS measuring heads screwed on) in a place that is controlled to 20°C (e.g. thermostat cabinet/box) for the specified number of days. When the measuring temperature has been reached (function *AutoTemp*: after at least 1 hour, at most approx. 3 hours), the OxiTop®-IDS measuring head automatically starts measuring the oxygen consumption.

22   During the specified measuring duration, stir the sample continuously (stirring platform, magnetic stirring rods) and keep the temperature controlled. The OxiTop®-IDS measuring head automatically stores the specified number of measured values each day during the selected measuring duration.

| | If there is a radio link with the measuring head (LED magenta), you can transfer and display the available measured values while a measurement is running. |

Carrying out the data backup

All set, sample and measurement data can be backed up to a connected USB memory device. The backup can be used to restore the set, sample and measurement data on this or another meter.

The function is a safeguard against data loss due to failure of the meter with which the measurements were started..

23   Option:
Carry out the backup to a USB memory device (see section
4.4.1 STARTING THE DATA BACKUP)

Completing the measurement

When the measurement is finished, the status LED flashes green for approx. 24 hours and the OxiTop®-IDS measuring head can be reached via radio.

24   Using **<M>**, switch to the *OxiTop set management*.

25   Using **<▲▼>**, select a set and open it with **<ENTER>**.
The data of the measuring heads are read out.
The reading out takes approx 5 seconds per OxiTop®-IDS measuring head, with many measurement data it may take longer.
In the *OxiTop set management*, the set is given a checkmark [✓] in the status field.

26   If necessary, edit the evaluation of the sample
(e.g. if an OxiTop®-IDS measuring head is missing, or if there are obviously wrong values for an OxiTop®-IDS measuring head, see section
5.3 EVALUATING THE SAMPLES).

27   Using **<M>**, switch to the *OxiTop set management*.

28   Using **<▲▼>**, select the finished and read-out set.

29   Using **<▲▼>**, select the finished and read-out set and, if necessary, delete it with **<F2>**/[*Delete*].
The measuring heads are released for new measurements.

5.2   Displaying and saving the momentary value

This function enables you to display the momentary pressure value of an active sample and to save up to 10 momentary values per sample during the runtime of the sample.

When 10 momentary values have been saved, no further momentary value can be displayed. In this case, the **<STO>** key is without function.

The saved momentary values are output as a block at the end of the output to the interfaces USB-A and USB-B or at the end of the csv file.

Displaying the momentary value

1   Using **<▲▼>**, in the *OxiTop set management* highlight a *Set* with running pressure measurement (*Measuring mode Pressure p*).

2   Open the details of the selected set with **<ENTER>**.
    The measuring heads automatically call up the current data of the set.
    The reading out takes approx 5 seconds per OxiTop®-IDS measuring head, with many measurement data it may take longer.

3   Select a sample of the set.

4   Select a measuring head of the sample.

5   ● Display the momentary value with **<STO>**.

   – Save the momentary value with **<ENTER>**.
     or

   – Exit the display without saving with **<ESC>**.

   ● Display any momentary values that were already saved with **<RCL>**.
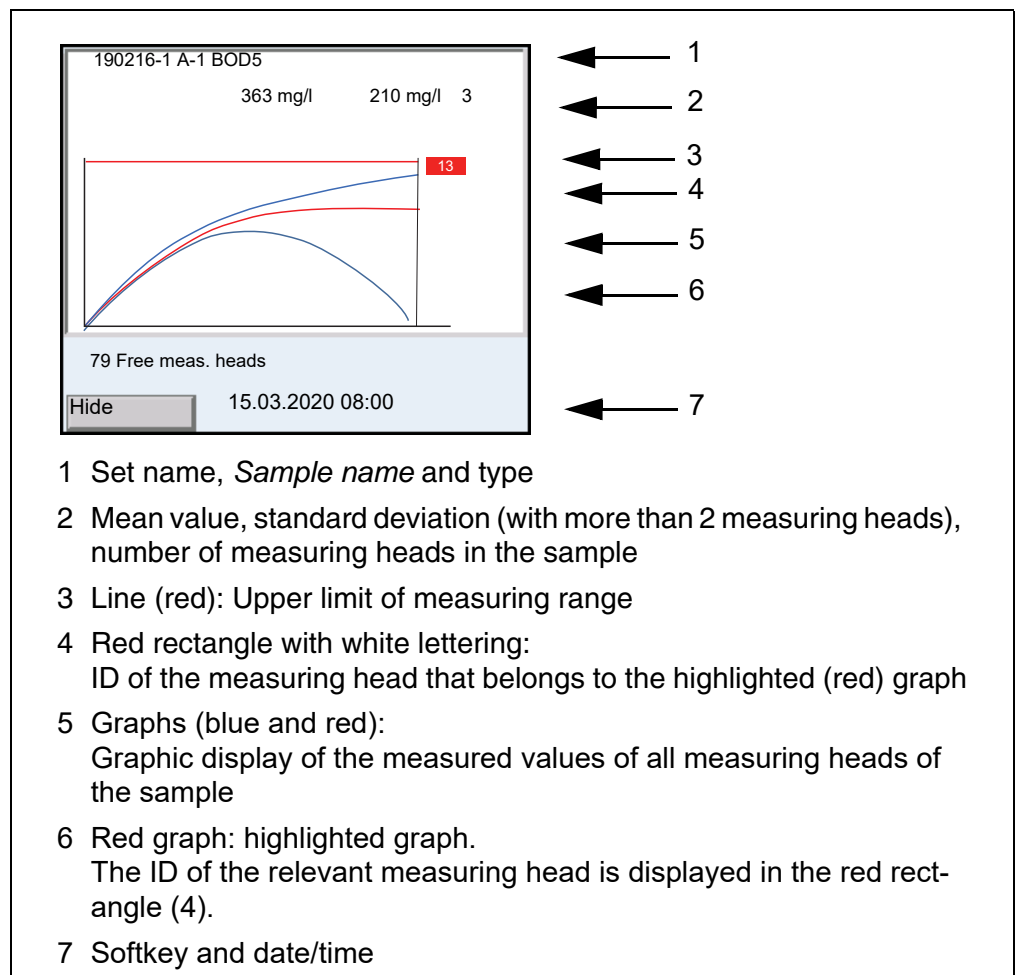
5.3   Evaluating the samples

You can view the current measurement data for each OxiTop®-IDS measuring head at any time (during or after the measurement).
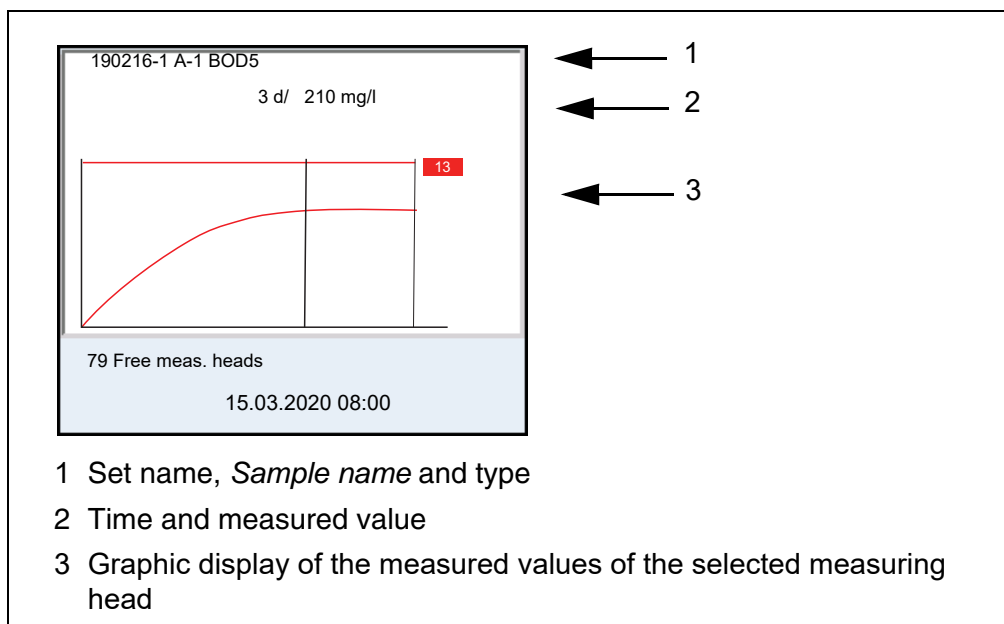
1   Using **<▲▼>**, highlight a set in the *OxiTop set management Set*.

2   Open the details of the selected set with **<ENTER>**.
    The measuring heads automatically call up the current data of the set.
    The reading out takes approx 5 seconds per OxiTop®-IDS measuring head, with many measurement data it may take longer.

3   Select a sample of the set and open the details of the selected sample with **<ENTER>** or **<F1>**/[**i**].
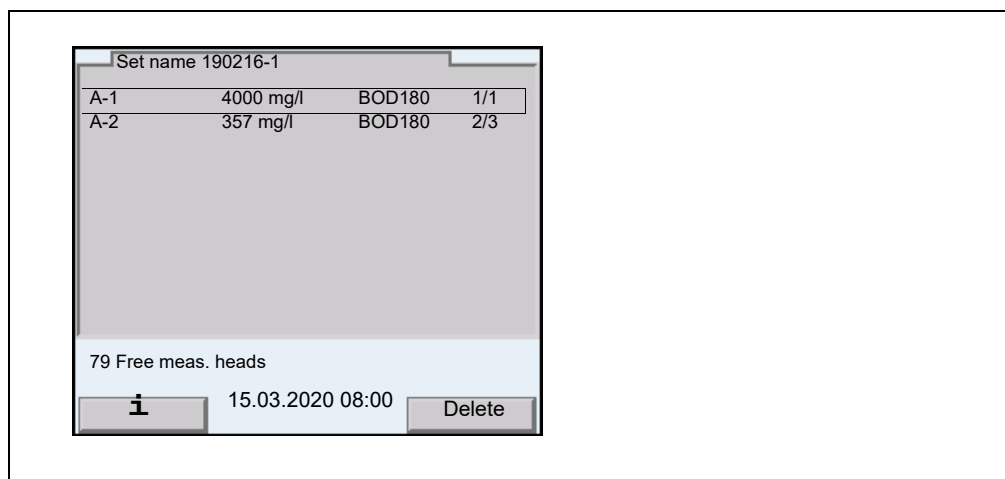
4 Carry out one of the following actions:
- Using **<ENTER>**, display the individual measuring heads of the selected sample. There you can

    – view the data of the individual measuring heads that were last stored

    – View *GLP* (if there is a valid calibration) and the remaining validity (in days)

    – Make the LED of the corresponding measuring head light up with **<F1>**/[**i**]

    – Delete individual measuring heads from the sample as necessary with **<F2>**/[*Delete*]

- Using **<F1>**/[**i**], display the graphic evaluation of the sample

- Erase the highlighted sample with **<F2>**/[*Delete*]

1 Set name, *Sample name* and type

2 Mean value, standard deviation (with more than 2 measuring heads), number of measuring heads in the sample

3 Line (red): Upper limit of measuring range

4 Red rectangle with white lettering:
   ID of the measuring head that belongs to the highlighted (red) graph

5 Graphs (blue and red):
   Graphic display of the measured values of all measuring heads of the sample

6 Red graph: highlighted graph.
   The ID of the relevant measuring head is displayed in the red rectangle (4).

7 Softkey and date/time

5 Carry out one of the following actions:
   - Using **<▲▼>**, highlight a graph.
   - Using **<ENTER>**, load the graph as a single graph. There you can
     – view the individual measured values of the measuring head with **<◄><►>**
     – return to the display of the graphs of all measuring heads with **<ESC>**
   - Hide the highlighted graph with **<F1>**/[*Hide*].


```
190216-1 A-1 BOD5                                    ← 1
        3 d/  210 mg/l                               ← 2

                              ┌──┐
                              │13│                    ← 3
                              └──┘




79 Free meas. heads
        15.03.2020 08:00
```

1 Set name, *Sample name* and type

2 Time and measured value

3 Graphic display of the measured values of the selected measuring head

6 Carry out one of the following actions:
   - view the individual measured values of the measuring head with **<◄><►>**
   - return to the display of the graphs of all measuring heads with **<ESC>**

7 Using **<M>**, switch to the *OxiTop set management*.

5.4   Transmitting data (USB interfaces)

Basic information on data transmission to the USB interfaces and on the settings for the USB interfaces is given in the operating manual of your meter.

With the aid of the MultiLab Importer software, you can record and evaluate measurement data with a PC.
More detailed information can be found in the MultiLab Importer operating manual.

1   Connect the output device to a USB interface.
- USB-A: USB printer, USB memory device

- USB-B: PC

2   Using **<M>**, open the *OxiTop set management*.

3   Using **<▲▼>**, highlight a *Set*.

4   Open the details of the selected set with **<ENTER>**.
The measuring heads automatically call up the current data of the set.
The reading out takes approx 5 seconds per OxiTop®-IDS measuring head, with many measurement data it may take longer.

5   Using **<▲▼>**, select a sample.

6   Using **<PRT_>** or **<PRT>**, output the data to the USB interfaces.

Key	Explanation
<PRT_>	Output of the data as a *.csv file to the USB-A interface, to a connected USB memory device.
<PRT>	Output of the data in ASCII or CSV format (setting in the system menu) to the interface USB-A or USB-B. The meter recognizes whether a printer or PC is connected.

The data transferred to the USB memory device are in the directory "OxiTop".

5.5   Displaying the settings for sets and samples

1   Using **<▲▼>**, highlight a set in the *OxiTop set management Set*.

2   Open the settings of the selected set with **<◄>**.

```
┌─────────────────────────────────────────┐
│ Set: 20200428-1 [2 Samples]          ▲  │
│ Measuring mode        BOD special    █  │
│ Duration              5 d            █  │
│ GLP                   on             █  │
│ AutoTemp              on             █  │
│ LED                   off            █  │
│ Number of measured val- Max.         █  │
│ ues                                  █  │
│ Man. temperature      19°C           █  │
│ Eco mode (radio)      on             █  │
│ Radio connection from 10:00          █  │
│ Radio connection until 11:00         █  │
│ Start date            27.04.2020     █  │
│                       10:04:00       ▼  │
│ ─────────────────────────────────────  │
│          27.04.2020 10:30               │
└─────────────────────────────────────────┘
```
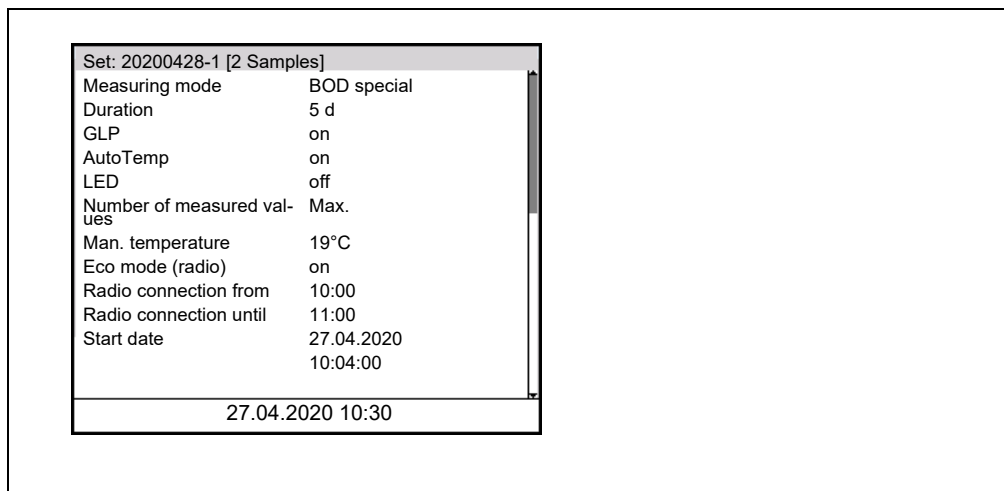
3   Carry out one of the following actions:
   ● Display further settings (for the samples) with **<▼>**

```
End date        02.05.2020
                10:04:00
# Sample 1/3: A-1 (2 Measuring heads)
Meas. range                     400 mg/
                                l
Bottle volume                   510 ml
Sample vol.                     160 ml
Dilution 1 +                    0
* 1/6: ID=1     SN=20052537
* 2/6: ID=16    SN=19083484
...             ....
```

   ● Output the data to the USB interface with **<PRT>**:
     to a PC (via the MultiLab Importer) or a printer

   ● Quit the display of the settings with **<ESC>**

5.6   Calibration

5.6.1   Why calibrate?

OxiTop®-IDS measuring heads age. Therefore, the tightness of the OxiTop®-IDS measuring heads and the accuracy of the pressure measurement can change, for example. The condition of the measuring heads can be evaluated by checking their tightness and measuring accuracy (see BOD application report).

5.6.2   When do you have to calibrate?

Routinely within the framework of the company quality assurance

5.6.3   Calibration procedure

Creation of a defined negative pressure and balancing with the display (see

BOD application report).

In contrast to physical or chemical measuring methods, BOD systems do not provide standardized values, as the use of microorganisms has a great spectrum depending on their composition and food supply. With the aid of testing tools and suitable tests, errors due to defective pressure sensors or untight Oxi-Top®-IDS measuring head threads can be identified.

You can check the OxiTop®-IDS measuring heads with the following procedures.

● OxiTop®-PM (Cal-Test)

● OxiTop®-PT (pneumatic test)

> Details on the tests are given in the operating manual of your Oxi-Top®-IDS measuring head.
>
> The test OxiTop®-PT (pneumatic test) is operated exclusively at the OxiTop®-IDS measuring head. The meter is not required for this.

5.6.4   OxiTop® PM-Test (Cal test)

The test checks the tightness and calibration of the pressure measuring system with the aid of a chemically simulated BOD.

The OxiTop®-PM calibration tablet contains, among other, a defined amount of sodium sulfite. The oxygen in the sample bottle oxidizes the sodium sulfite to sodium sulfate. This process consumes the oxygen present in the sample bottle. The reduction of oxygen causes a defined negative pressure. The BOD value corresponding to this negative pressure is given in the packet.

The procedure is similar to a BOD5 measurement with

● specified sample volume (164 ml) and

● addition of the calibration tablet

Details on sample preparation and steps of the test: see operating manual of the OxiTop®-PM test resource.

The test is started in one of the following ways:

● OxiTop®-IDS measuring head without wirelessly connected meter: BOD5 measurement (with defined sample volume)

● OxiTop®-IDS measuring head with wirelessly connected meter: BOD5 measurement (with defined sample volume, menu-guided test)

Starting with the meter

1   Open the *OxiTop set management*.

2   Using **<CAL>**, start the OxiTop® PM test.
The calibration is stored as a BOD5 measurement among the other active sets.
"CAL" is used automatically as name for the *Set*.
"A" is used automatically as the name for the sample.

3   Assign an OxiTop®-IDS measuring head to the current sample.
     The assigning is done similar to creating a sample for measurement
     (see section 5.1.2 THE COURSE OF THE MEASUREMENT).

4   If necessary, assign further OxiTop®-IDS measuring heads to the sam-
     ple (details: see section 5.1.2 THE COURSE OF THE MEASUREMENT) is
     displayed.

5   If necessary, create more samples with measuring heads in the set
     (details: see section 5.1.2 THE COURSE OF THE MEASUREMENT).

6   Start the calibration.

7   The measurement result is displayed after the BOD measurement is
     completed.

Calibration evaluation   After calibrating, the meter automatically evaluates the calibration. Evaluated is the deviation of the measurement result from the nominal value of the test (300 ± 30 mg/l).

Successful calibration	**Calibration unsuccessful**
The measurement result is within the tolerance of the nominal value	The measurement result is outside the tolerance of the nominal value
The calibration data can be stored in the measuring head.	The calibration data **cannot** be stored in the measuring head.

8   Position the successfully calibrated and ready-to-receive OxiTop®-IDS
     measuring heads in the vicinity of the meter.

The successful calibration is only automatically saved to all mea-
suring heads ready to measure when the set is erased.

9   Erase the set for calibration at the meter

     1   Using **<M>**, switch to the *OxiTop set management*.

     2   Using **<▲▼>**, select the finished set of the calibration and erase
          with **<F2>**/[*Delete*].

          ● After successful calibration:
            The calibration data and the validity period (365 days) are
            stored in the IDS measuring head.
            In the meter, the calibration data are erased.

          ● After unsuccessful calibration:
            The calibration data are not stored in the IDS measuring
            head.
            The measuring head is not approved for measurements with
            active GLP function.

If the GLP function is active, each IDS measuring head is checked for a valid calibration prior before the sample is assigned to a sample (GLP).

If there is a valid calibration the measuring head is accepted.
If there is no valid calibration the measuring head is rejected.

6   Technical data

The present operating manual only describes operating with a MultiLine
Multi 3630/3620 IDS.

The technical data of the individual devices of the OxiTop$^®$ measuring system
are given in the following documents:

- Meter (Multi 3630/3620 IDS),

- IDS-WLM-M adapter,

- OxiTop$^®$-IDS measuring head.

Operation with OxiTop$^®$-IDS measuring heads	**Measuring ranges**	*Measuring mode BOD standard*	0 ... 40 / 80 / 200 / 400 / 800 / 2000 / 4000 mg/l BOD
		Measuring mode BOD special	0 ... 400000 mg/l BOD
		Measuring mode Pressure p	500 ... 1250 hPa (OxiTop$^®$ i/OxiTop$^®$-IDS) 500 ... 1500 hPa (OxiTop$^®$-IDS /B)
	Number of datasets per Oxi-Top$^®$-IDS measuring head	*Standard*	1 measured value per day
		Max.	360 measured values for the specified measuring duration
	Number of Oxi-Top$^®$-IDS measuring heads per meter	Max. 100	

7 What to do if...

	Cause	Remedy

An OxiTop®-IDS measuring head cannot be registered for a sample	– The selected OxiTop®-IDS measuring head is already registered for a sample
	
	Example: A reset was carried out at an OxiTop®-IDS measuring head registered for a sample
		– Register a free OxiTop®-IDS measuring head
		– Release an OxiTop®-IDS measuring head
		   – Delete the individual OxiTop®-IDS measuring head from the sample for which it is registered
		   – Delete the set in which the OxiTop®-IDS measuring head is registered.

	– The *GLP* function is switched on and the measuring head does not have a valid calibration.	– Use another OxiTop®-IDS measuring head – Calibrate the measuring head
No measurement graphs are displayed although the measurement has already been running for an extended period of time	– The *AutoTemp* phase is still running – An OxiTop®-IDS measuring head cannot be addressed	– Wait for the end of the *AutoTemp* phase then start the evaluation – See error symptom, An OxiTop®-IDS measuring head cannot be addressed
An OxiTop®-IDS measuring head cannot be addressed	– The radio link was switched off at the OxiTop®-IDS measuring head, e.g. to save energy – The radio link of the OxiTop®-IDS measuring head is restricted (*Eco mode (radio) = on*). The LED at the OxiTop®-IDS measuring head flashes blue. – The batteries of the OxiTop®-IDS measuring head is empty – The radio links between OxiTop®-IDS measuring head and meter is interrupted – The OxiTop®-IDS measuring head is defective	– If necessary, read out manually any measurement data available from the OxiTop®-IDS measuring head – Start the radio link to the OxiTop®-IDS measuring head during the specified time (*Eco mode (radio)/ Radio connection from ... Radio connection until*). The LED at the OxiTop®-IDS measuring head flashes magenta. – Exchange the battery (even during a measurement) – Remove any barriers and sources of interference from the radio link (see operating manual of the WLM system). Re-establish the connection – Exchange the defective OxiTop®-IDS measuring head – Contact the service department

	Cause	Remedy
The Multi 3630/ 3620 IDS meter does not react	– The batteries of the meter are empty – Operating condition undefined or EMC load unallowed – The meter is defective	– Insert new batteries or connect the power pack – Carry out a reset at the meter (simultaneously press the keys **<ENTER>** and **<On/Off>**) – Contact the service department
Measured values (or graphics) are obviously wrong	– Erroneous data in the storage of the meter	– Read out the storage of the meter once again with **<RCL>**.

	– Erroneous data transmission from the OxiTop®-IDS measuring head to the meter	– Re-transfer to the meter the measurement data of all measuring heads in the set.
		The reading out takes approx 5 seconds per OxiTop®-IDS measuring head, with many measurement data it may take longer.
		
		  – Using **<▲▼>**, highlight a set in the *OxiTop set management Set*.
		
		  – Start the transmission of the measurement data with **<RCL_>**.
		
		– Contact the service department

Error while starting any functions of the sample- or set management	– Error of the sample- and set management	– OxiTop® Reset the sample- and set management in the menu *System*/*Service information*/*Reset the OxiTop set management* While doing this, all sample- and set data are erased.
Display 🚫	– During the switching over to operation with OxiTop measuring heads (with **<M_>**), an IDS sensor is connected in addition to the IDS WLM-M adapter	– Disconnect the IDS sensor

	– During operation with OxiTop®-IDS measuring heads, an IDS sensor was plugged in	– According to the intended use:
		  – Disconnect the IDS sensor
		  or
		  – Switch to operating with IDS sensors (with **<M_>**)
		  or
		  – Unplug the IDS WLM-M adapter

8   Firmware update

8.1   Firmware update for the meter Multi 3630/3620 IDS

You can find available firmware update files for your meter on the Internet.
With the "Firmware Update " program and a PC you can update the firmware
of the Multi 3630/3620 IDS to the newest version.

For the update you have to connect the meter to a PC via the USB interface.

The update requires:

● a free USB interface (virtual COM port) on the PC

● the driver for the USB interface (on the enclosed CD-ROM)

● the USB cable (included in the scope of delivery of the Multi 3630/
3620 IDS).

1.   Install the downloaded firmware update on a PC.

      An update folder is created in the Windows start menu.
      If an update folder already exists for the meter (or meter type), the new
      data are displayed there.

2.   In the windows start menu, open the update folder and start the firm-
      ware update program for the meter.

3.   Using the USB interface cable, connect the Multi 3630/3620 IDS to a
      USB interface (virtual COM port) of the PC.

4.   Switch on the Multi 3630/3620 IDS.

5.   In the firmware update program, start the update process with OK.

6.   Follow the instructions of the firmware update program.
      During the programming process, a corresponding message and a
      progress bar (in %) are displayed.
      The programming process takes up to 15 minutes. A terminatory mes-
      sage is displayed after a successful programming process. The firm-
      ware update is completed.

7.   Disconnect the Multi 3630/3620 IDS from the PC.
      The Multi 3630/3620 IDS is ready for operation again.

After switching the meter off and on you can check whether the meter has taken
over the new software version

● Operation with OxiTop®-IDS measuring heads:
  Menu **<ENTER_>** / *Service information* / *Meter information*.

● When operating with IDS sensors:
  Menu **<ENTER_>** / *System* / *Service information* / *Meter information*.

8.2 Firmware update for the IDS WLM-M adapter

You can find available firmware update files for the IDS WLM-M adapter on the Internet. With the Firmware Update program and a PC you can update the firmware of an IDS WLM-M adapter to the newest version.

For updating, connect the IDS WLM-M adapter to the Multi 3630/3620 IDS with a cable, and the Multi 3630/3620 IDS to a PC via the USB-B interface.

The update requires:

● a free USB interface (virtual COM port) on the PC

● the driver for the USB interface (on the enclosed CD-ROM)

● the USB cable (included in the scope of delivery of the Multi 3630/ 3620 IDS).

1. Install the downloaded firmware update on a PC.

    An update folder is created in the Windows start menu.
    If an update folder already exists for the sensor (or sensor type), the new data are displayed there.

2. In the windows start menu, open the update folder and start the firmware update program for the IDS sensor

3. Connect the IDS WLM-M adapter to the meter.
    Only the connector in the lower section of the socket field (channel 1) is suitable for the firmware update.

4. Using the USB interface cable, connect the Multi 3630/3620 IDS to a USB interface (virtual COM port) of the PC.

5. Switch on the Multi 3630/3620 IDS.

6. In the firmware update program, start the update process with OK.

7. Follow the instructions of the firmware update program.
    During the programming process, a corresponding message and a progress bar (in %) are displayed.
    The programming process takes up to 5 minutes. A terminatory message is displayed after a successful programming process. The firmware update is completed.

8. Disconnect the Multi 3630/3620 IDS from the PC.
    The meter and IDS WLM-M adapter are ready to operate.

After switching the meter off and on you can check whether the IDS WLM-M adapter has taken over the new software version:

● Operation with OxiTop®-IDS measuring heads:
  Menu **<ENTER_>** / *Service information* / *Meter information*.

● When operating with IDS sensors:
  Menu **<ENTER_>** / *System* / *Service information* / *Meter information*.

8.3   Firmware update for OxiTop®-IDS measuring heads

Available firmware updates for OxiTop®-IDS measuring heads are provided on the Internet. With the "Firmware Update " program and a PC you can update the firmware of a OxiTop®-IDS measuring head to the newest version.

For the update you have to connect the Multi 3630/3620 IDS meter to a PC via the USB interface and start the update program at the PC.

The update requires:

● a free USB interface (virtual COM port) on the PC

● the driver for the USB interface (on the enclosed CD-ROM)

● the USB cable (included in the scope of delivery of the Multi 3630/ 3620 IDS).

● the current firmware for the WLM-M adapter (see section 8.2)

● the current firmware for the meter (see section 8.1)

Only ever start the update function at a single OxiTop®-IDS measuring head.

1   Install the downloaded firmware update on a PC.
    An update folder is created in the Windows start menu.
    If an update folder for the OxiTop®-IDS measuring head is already existing, the new data are displayed there.

2   In the windows start menu, open the update folder and start the firmware update program for the OxiTop®-IDS measuring head.

3   Using the USB interface cable, connect the Multi 3630/3620 IDS to a USB interface (virtual COM port) of the PC.

4   Switch on the Multi 3630/3620 IDS.

5   At the OxiTop®-IDS measuring head in the *Service* / *Update-Modus* menu, start the update (see operating manual of the OxiTop®-IDS measuring head).

6   In the firmware update program at the PC, start the update process with OK.
    The firmware is loaded and automatically installed.

7   Follow the instructions of the firmware update program.
    During the programming process, a corresponding message and a progress bar (in %) are displayed.
    The programming process takes up to 5 minutes. A terminatory message is displayed after a successful programming process. The firmware update is completed.

8   The OxiTop®-IDS measuring head is ready to measure again.

OxiTop®-IDSYou can check the installed firmware version at the (OxiTop®-IDS measuring head: Menu **<ENTER_>** / *System* / *Service info...*).

Xylem |ˈzīləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com.